REMARKS

The enclosed is responsive to the Examiner's Office Action mailed on January 12, 2007. At the time the Examiner mailed the Office Action claims 39-76 were pending. By way of the present response the Applicants have: 1) amended claims 39, 58, and 73; 2) added new claims 77-79; and 3) canceled claims 41-42, 49, 59-60, 69-72, and 74-75. As such, claims 39-40, 43-48, 50-58, 61-68, 73, and 76-79 are now pending. The Applicants respectfully request reconsideration of the present application and the allowance of all claims now represented.

Claim Rejections

35 U.S.C. 102(b) Rejections

The Office Action rejected claims 39, 41, 42, 44-47, 49, 59, 60, 67-70 and 72 under 35 U.S.C. 102(b) as being anticipated by Wong, et al. U.S. Publication No. 2002/0078061 (hereinafter "Wong").

Wong describes "set address correlation ... between addresses belonging to a common address se-. Addresses are grouped into address sets and correlations are created between addresses by set." (Wong, Abstract.) These "correlations are used to predict future addresses based on current addresses observed in an address stream." (Wong, 0014.) A "set address history table (SAHT)" may be used "to record the previous miss address for each address set and builds the correlations from the data in the SAHT." (Wong, 0019.)

Applicants have amended claim 39 to include the limitation of claim 42. With respect to the amended claim 39, Wong does not describe:

> a cache to hold a first cache line; and
> a correlation prefetcher to prefetch to the
> cache a second cache line correlated with the first
> cache line, wherein the correlation prefetcher is to
> identify the second cache line as being correlated
> with the first cache line based on an age of the
> second cache line relative to that of the first cache
> line.

Wong describes, in the paragraphs cited by the Office Action, that exemplary reference addresses change over time (see, "time" values in Wong, Figures 1 and 2). However, Wong does not describe that a "correlation prefetcher is to identify the second cache line as being correlated with the first cache line based on an age of the second cache line relative to that of the first cache line." Rather, Wong describes the use of key addresses and their successor addresses (Wong, Fig. 1) and a set address history table (SAHT) that records the previous miss addresses for each address set and builds correlations from that data (Wong, 0019-0022.) The paragraphs cited by the Office Action do not relate an age of a cache line to whether or not that cache line is correlated to another cache line.

Accordingly, claim 39 is not described by Wong. Claims 40, 43-48, and 50-57 are dependent upon claim 39 and are allowable for at least the same reason.

Applicants have amended claim 58. With respect to the amended claim 58, Wong does not describe:

> holding a first cache line in a cache;
> identifying a second cache line correlated with the first cache line based on an age of the second cache line relative to that of the first cache line; and
> prefetching the second cache line to the cache.

Wong describes, in the paragraphs cited by the Office Action, that exemplary reference addresses change over time (see, "time" values in Wong, Figures 1 and 2). However, Wong does not describe that a "correlation prefetcher is to identify the second cache line as being correlated with the first cache line based on an age of the second cache line relative to that of the first cache line." Rather, Wong describes the use of key addresses and their successor addresses (Wong, Fig. 1) and a set address history table (SAHT) that records the previous miss addresses for each address set and builds correlations from that data (Wong, 0019-0022.) The paragraphs cited by the Office Action do not relate an age of a cache line to whether or not that cache line is correlated to another cache line.

Accordingly, claim 58 is not described by Wong. Claims 61-68 are dependent upon claim 39 and are allowable for at least the same reason.

35 U.S.C. 103(a) Rejections

The Office Action rejected claims 48 and 73-75 under 35 U.S.C. 103(a) as being unpatentable over Wong in view of Witt, U.S. Patent No. 6,332,187 (hereinafter "Witt").

Witt describes "[a] processor [] configured to generate lookahead values using a cumulative constant." (Witt, Abstract.) "[A] lookahead unit is configured to detect an instruction having a particular register as an operand. The lookahead unit is configured to generate a constant corresponding to the instruction, wherein the constant is indicative of a modification of a value stored into the particular register in response to executing a previous instruction." (Witt, col. 2, lines 51-56.)

Applicants have amended claim 73. With respect to the amended claim 73, the combination of Wong and Witt as asserted does not describe:

> a processor including a cache to hold a first cache line and including a correlation prefetcher to prefetch to the cache a second cache line correlated with the first cache line based on an age of the second cache line relative to that of the first cache line; and
>
> memory coupled to said processor.

Wong describes, in the paragraphs cited by the Office Action, that exemplary reference addresses change over time (see, "time" values in Wong, Figures 1 and 2). However, Wong does not describe the use of "a correlation prefetcher to prefetch to the cache a second cache line correlated with the first cache line based on an age of the second cache line relative to that of the first cache line." Rather, Wong describes the use of key addresses and their successor addresses (Wong, Fig. 1) and a set address history table (SAHT) that records the previous miss addresses for each address set and builds correlations from that data (Wong, 0019-0022.) Witt also does not describe correlating cache lines based on age.

Accordingly, the combination of Witt and Wong does not describe what Applicants claim 73 requires.

In light of the comments above, the Application respectfully request the allowance of all claims.
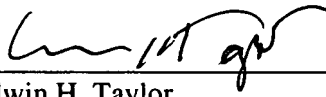
CONCLUSION

Applicant respectfully submits that all redetections have been overcome and that all pending claims are in condition for allowance.

If there are any additional charges, please charge them to our Deposit Account Number 02-2666. If a telephone conference would facilitate the prosecution of this application, the Examiner is invited to contact Thomas C. Webster at (408) 720-8300.

Respectfully submitted,

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